5 Nov 1991

AN2NZ-A

ANALYZER, NETWORK

1. GENERAL. This procurement requires a vector network analyzer that also provides spectrum analysis capability.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall provide vector network and spectrum measurements in accordance with the following specifications.

3.1 Frequency range. 100 kHz to 450 MHz. Accuracy: ±20 ppm.

3.2 Input channels. 4 input channels, 50 ohms nominal each. SWR: 1.45 maximum.

3.3 Maximum input level. 20 dBm.

3.4 Connectors. N(f).

3.5 Network measurements. The equipment shall be capable of measuring transmission and reflection parameters with readouts of attenuation, gain, phase shift, reflection coefficient, return loss, and impedance.

3.6.1 Receiver specifications.

3.6.1.1 Resolution bandwidth. 3 Hz to 300 kHz.

3.6.1.2 Channel isolation. 90 dB minimum.

3.6.1.3 Dynamic range. 100 dB minimum.

3.6.1.4 Level resolution. 0.001 dB.

3.6.1.5 Dynamic accuracy. ±0.05 dB or less with a reference input of -30 dBm and a test input of -70 to -30 dBm.

3.6.1.6 Frequency response. ±1 dB to 200 MHz, ±1.5 dB thereafter.

3.6.1.7 Phase measurement range. ±180 degrees.

3.6.1.8 Phase measurement resolution. 0.01 degrees.

3.6.1.9 Phase measurement accuracy. ±0.3 degrees or less with a reference input of -30 dBm and a test input of -70 to -30 dBm.

3.6.2 Source specifications. A separate enclosure for the equipment signal source and channel attenuators is acceptable.

3.6.2.1 Output power range. -50 to +15 dBm. Resolution: 0.1 dB.

3.6.2.2 Output power accuracy. ±0.5 dB or less at +10 dBm, 50 MHz. Flatness: ±1.5 dB.

3.6.2.3 Impedance. 50 ohms nominal. SWR: 1.45 or less at 5 dBm output.
3.6.2.4 Spectral purity. At 10 dBm output:

a. Harmonics: -30 dBc.

b. Spurious: -50 dBc.

3.6.2.5 Frequency resolution. 1 MHz.

3.6.2.6 Attenuation. 0 to 50 dB in 10 dB steps.

3.7 Spectrum analysis measurements. The equipment shall be capable of relative and absolute frequency and amplitude measurements of RF signals.

3.7.1 Frequency reference stability. ±5 x 10E-6 per day.

3.7.2 Frequency response. ±1.5 dB at 10 dB input attenuation.

3.7.3 Resolution bandwidth. 3 Hz to 300 kHz. Bandwidth accuracy: ±10%.

3.7.4 Amplitude measurement range. -135 to +20 dBm. Accuracy: ±1 dB at 50 MHz.

3.7.5 Harmonic distortion.

a. Spurious responses: -70 dBc.

b. 2nd Harmonics: -70 dBc.

c. 3rd Order intermodulation: -80 dBc.

3.7.6 Maximum input without damage. +30 dBm or ±7 Vdc.

3.8 Disk storage. The equipment shall be capable of disk storage and recall of instrument settings, calibration data, and measurement data. Disk capacity shall be at least 630 kilobytes.

3.9 Frequency reference capability. 10 MHz reference input and output.

3.10 Display dimensions. 6 inch diagonal minimum.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Maximum power consumption: 500W.

4.2 Weight. 41 kg (90 lb) maximum.

4.3 Digital interface. The equipment shall be provided with a digital interface in accordance with MIL-T-28800.

4.4 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the

specific model proposed.